

S1D13xxx Product Comparison

July 2002

DESCRIPTION

The S1D13xxx family of products offers operating system independent display solutions for embedded markets, such as Mobile Communications, Hand-Held PCs, Office Automation, and other embedded devices.

Support for the most popular RISC processors, in addition to all LCD panel types, provides the OEM with complete flexibility. EPSON innovative features such as EPSON Independent Simultaneous Display, SwivelView™, 2D Acceleration, "Picture-In-Picture Plus", integrated USB Client, Digital Camera Interface, and Power Saving technology combine to provide an ideal display solution for a wide variety of applications.

■ FEATURES

Memory Interface	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05
16-bit EDO-DRAM or FPM-DRAM 512k byte 2M byte	√	√	√	-	-	-	-	-	-	-	-
Embedded SRAM 40k byte 80k byte 112k byte 160k byte 256k byte	-	-	-	√	-	-	-	-	-	-	-
Embedded SDRAM 1280k byte	-	-	-	-	-	-	-	√	-	-	-
Display Support	√	√	√	√	√	√	√	√	√	√	√
4/8-bit monochrome passive LCD	√	√	√	√	√	√	√	√	√	√	√
4/8/16-bit color passive LCD	√	√	√	√	√	√	√	√	√	√	√
9/12/18-bit active matrix TFT/D-TFD	√	√	√	√ ¹	√ ¹	√	√	√	√	√	√
2x9/2x12 active matrix TFT/D-TFD	-	-	-	-	-	-	√	-	-	-	-
18-bit 'Direct' HR-TFT	-	-	-	-	-	√	√	-	√	√	√
18-bit 'Direct' D-TFD	-	-	-	-	-	√	√	-	-	-	-
CRT	√ ²	√	√	-	-	-	-	√	-	-	-
TV (NTSC and PAL)	-	-	√	-	-	-	-	√	-	-	-
Single-panel, single drive passive	√	√	√	√	√	√	√	√	√	√	√
Dual-panel, dual drive passive	√	√	√	√	√	-	-	√	-	-	-
Example Resolutions	16	16	16	8	8	16	16	16	16	16	16
Max. color depth at 160x160 (bpp)	16	16	16	4	8	8	8	16	16	16	16
Max. color depth at 160x160 (2 pages) (bpp)	16	16	16	8	8	16	16	16	16	16	16
Max. color depth at 240x160 (bpp)	16	16	16	4	8	8	8	16	8	16	16
Max. color depth at 320x240 (bpp)	16	16	16	2	4	4	4	16	8	8	16
Max. color depth at 320x320 (bpp)	16	16	16	2	4	4	4	16	4	8	8
Max. color depth at 640x240 (bpp)	16	16	16	1	2	2	2	16	2	4	4
Max. color depth at 640x480 (bpp)	16	16	16	-	-	1	1	16	1	2	4
Max. color depth at 800x600 (bpp)	-	-	-	-	-	-	8	-	-	2	2
Max. color depth at 1024x768 (bpp)	-	-	-	-	-	-	-	8	-	-	2

CPU Interface	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05
CPU Write Buffer	√	√	√	√	√	√	√	√	√	√	√
CPU Interfaces - Epson S1C33 - Hitachi SH-3 - Hitachi SH-4 - MIPS/ISA - Motorola Dragonball - Motorola MC68000 - Motorola MC68030 - Motorola PowerPC MPC82x - Motorola REDCAP2 - MPU with programmable READY - MPU with no READY - NEC MIPS VR41xx - PC Card - Philips MIPS PR31500/PR31700 - StrongARM (PC Card) - Toshiba TX39xx	√	√	√	√	√	√	√	√	√	√	√
Display Modes	√	√	√	√	√	√	√	√	√	√	√
Up to 16 gray shades on mono passive panels	-	-	√	-	-	√	√	√	√	√	√
Up to 64 gray shades on mono passive panels ³	√	√	√	√	√	√	√	√	√	√	√
Up to 256 colors on color passive panels	√	√	√	√	√	√	√	√	√	√	√
Up to 4096 colors on color passive panels	-	-	√	-	-	√	√	√	√	√	√
Up to 64k colors on color passive panels ⁴	√	√	√	√	√	√	√	√	√	√	√
Up to 256 colors on TFT/D-TFD panels	√	√	√	-	-	√	√	√	√	√	√
Up to 64k colors on TFT/D-TFD panels	-	-	-	-	-	√	√	-	-	-	-
Up to 64k colors on D-TFD panels	-	-	-	-	-	√	√	-	√	√	√
Up to 64k colors on HR-TFT panels	-	-	-	-	-	√	√	-	√	√	√

¹ S1D13704/S1D13705 9/12-bit only

² S1D13504 with external RAMDAC

³ Interface requires external logic

⁴ Using dithering

S1D13xxx Features

Display Features

	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05
2D BitBLT Engine	-	-	√	-	-	-	-	√	√	√	√
Double Buffering/Multi-pages	√	√	√	√	√	√	√	√	√	√	√
Epson Independent Simultaneous Display	-	-	√	-	-	-	-	√	-	-	-
Hardware Cursor	-	√	√	-	-	-	-	√	-	-	-
Ink Layer	-	√	√	-	-	-	√	√	-	-	-
Picture-In-Picture Plus	-	-	-	-	√	√	-	√	√	√	√
Pixel Doubling	-	-	-	-	-	-	-	√	√	√	√
Simultaneous Display on LCD and CRT	√	√	-	-	-	-	-	-	-	-	-
Split Screen Support	√	√	-	√	√	√ ⁵	√ ⁵	-	√ ⁵	√ ⁵	√ ⁵
SwivelView™											
• SwivelView 90° rotation	-	√	√	-	-	√	√	√	√	√	√
• SwivelView 180° rotation	-	-	√	-	-	√	√	√	√	√	√
• SwivelView 270° rotation	-	-	√	√	√	√	√	√	√	√	√
Video Invert	-	-	-	√	√	√	√	-	√	√	√
Virtual Display Support	√	√	√	√	√	-	-	√	-	-	-

⁵ Using Picture-In-Picture Plus

⁶ Core voltage from 2.7 to 3.6V

⁷ Core voltage is 1.8V ± 10%

⁸ Core voltage is 2.0V ± 10% or 2.5V ± 10%

Miscellaneous

	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05
General Purpose IO Pins	√	√	√	√	√	√	√	√	√	√	√
USB Client, revision 1.1 compliant	-	-	-	-	-	-	-	-	√	√	√
MediaPlug digital video camera interface	-	-	√	-	-	-	-	√	-	-	-
Power Saving											
• Software Initiated Power Save Mode	√	√	√	√	√	√	√	√	√	√	√
• Hardware Power Save Mode	√	√	-	√	-	-	-	-	-	-	-
Operating System Independent	√	√	√	√	√	√	√	√	√	√	√
Operating Voltage											
• from 2.7 volts to 5.5 volts	√	√	√	√ ⁶	√ ⁶	-	-	-	-	-	-
• from 3.0 volts to 3.6 volts	-	-	-	-	√ ⁷	√ ⁷	√ ⁸	√ ⁸	√ ⁸	√ ⁸	√ ⁸
Package Size											
• 80-pin QFP14	-	-	-	√	√	-	-	-	-	-	-
• 100-pin TQFP15	-	-	-	-	√	-	-	-	-	-	-
• 104-pin CFLGA	-	-	-	-	√	-	-	-	-	-	-
• 120-pin PFBGA	-	-	-	-	-	√	-	-	-	-	-
• 121-pin PFBGA	-	-	-	-	-	-	-	√	√	√	√
• 128-pin QFP15	√	√	√	-	-	-	-	-	-	-	-
• 128-pin TQFP15	√	-	-	-	-	-	-	-	√	-	-
• 144-pin QFP20	√	-	-	-	-	-	√	-	-	-	-
• 220-pin PFBGA	-	-	-	-	-	-	√	-	-	-	-

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